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ABSTRACT

This paper describes the elements that most clearly identify and are most critical to a mastery learning program. Ways in which teachers can easily and efficiently implement these elements in their teaching and practices are outlined, along with procedures for evaluating their effectiveness in improving student learning. A discussion is presented on the elements most basic and crucial to the mastery learning process. These elements consist of feedback, correctives and enrichment activities, coupled with congruence with specific learning criteria and the procedures used to evaluate learning. Implications for the implementation of mastery learning are discussed: (1) mastery learning can be very broadly applied; (2) teachers need not dramatically change what they are doing in their classrooms or the way they teach to use mastery learning; (3) mastery learning has a positive effect on most student achievement; and (4) more students can experience learning success. A brief list of references is included. (JD)

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DEFINING THE CRITICAL ELEMENTS OF A MASTERY LEARNING PROGRAM

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Abstract

This paper describes the elements that most clearly identify and are most critical to a mastery learning program. Ways in which teachers can easily and efficiently implement these elements in their teaching practices are outlined, along with procedures for evaluating their effectiveness in improving student learning.

Defining the Critical Elements of a Mastery Learning Program

Few approaches to education have attracted as much attention in recent years as mastery learning. Educational researchers as well as classroom teachers and school administrators have become increasingly interested in mastery learning as a means of enhancing instructional quality and improving student learning. This growing interest in mastery learning appears to stem from two major developments. First, modern research studies on the quality of instruction and highly effective schools consistently point to aspects of mastery learning as an integral part of successful teaching and learning (Brophy, 1979, 1982; Leinhardt & Pallay, 1982). And second, reports from school systems throughout the United States and around the world show that the implementation of mastery learning can indeed lead to striking improvements in a wide range of student learning outcomes (Benjamin, 1981; Fiske, 1980; Guskey & Gates, 1985).

In essence, mastery learning is a theory about teaching and learning that is closely tied to a set of instructional strategies. The theory of mastery learning is based on the belief that all children can learn when provided with conditions that are appropriate for their learning. The instructional strategies associated with mastery learning are designed to put that belief into practice in modern classrooms.

Most current applications of mastery learning are based on the ideas outlined by Benjamin S. Bloom in his article "Learning for Mastery" (Bloom, 1968). But these ideas are really not new. The basic tenets of

mastery learning were described in the early years of the twentieth century by Washburne (1922) and Morrison (1926), and can be traced to such early educators as Comenius, Pestalozzi, and Herbart (Bloom, 1974).

The growing attention brought to mastery learning has resulted in some confusion, however. The label "mastery learning" is today applied to a broad range of educational materials and curricula, many of which bear little or no resemblance to the ideas described by Bloom and then refined by Block (1971), Block and Anderson (1975), and Guskey (1985). The specific qualities and characteristics of "mastery learning" programs are also known to vary greatly from setting to setting, making it difficult identify what is and what is not mastery learning. In addition, descriptions of mastery learning programs typically include detailed information on a wide variety of instructional elements, many of which are not truly essential to the mastery learning process.

Outlined here are what are believed to be the most basic and also the most critical elements of the mastery learning process. Although the actual appearance or format of these elements may vary, they serve a very specific purpose in the mastery learning process and most clearly differentiate mastery learning from other instructional approaches. Furthermore, it is argued that a program that does not include these elements cannot accurately be called "mastery learning."

The two elements that are most basic and most crucial to the mastery learning process are feedback and correctives, and congruence among instructional components.

Feedback and Correctives

In a mastery learning class, students must be given precise information on their learning progress at very regular intervals throughout the instructional sequence. This information, or feedback, must be both diagnostic, and prescriptive. That is, it should help students identify what is important for them to learn, what they have learned well, and on what they need to spend some more time. In addition, feedback should be appropriate for students' level of learning and should reward students for their learning successes.

By itself, however, feedback will not help students greatly improve their learning. For significant improvement to occur the feedback students receive must be paired with explicit corrective activities. These correctives offer students specific guidance and direction on how they can correct their learning errors or remedy their learning problems. Correctives must also approach the learning in a way that is different from the initial teaching. In other words, they must offer an instructional alternative. To simply go back and repeat a previous approach that has already proven unsuccessful is unlikely to bring any better results. Hence, correctives should present the material in a new way or involve students differently in the learning. Furthermore, the correctives must be effective in improving performance. A new or alternative approach that does not help students remedy their learning errors and overcome their learning difficulties is inappropriate as a corrective and ought to be avoided.

In most group-based applications of mastery learning, correctives are accompanied by enrichment activities for students who attain mastery

from the initial teaching. Enrichment activities provide these students with opportunities to broaden and expand their learning. They are rewarding and exciting learning activities that challenge students to extend what they have learned. Enrichment activities should be related to the subject area in which mastery learning is being used but need not be tied to the content of a specific unit. Hence, they represent an excellent means of involving students in challenging, higher level activities such as those designed for the gifted and talented.

Feedback and correctives can be implemented in classrooms in a variety of ways. In most mastery learning classes, the principal source of feedback information is a short, objective-type of formative test. But the regular quizzes a teacher already employs might serve this purpose quite well, so long as they are diagnostic and are paired with specific corrective activities. Teachers who write detailed notes on students' papers, discussing errors and making suggestions for improvements, are also offering diagnostic and prescriptive feedback. Corrective activities might then include having students correct, revise, and rewrite their papers.

Feedback and corrective procedures are crucial to the mastery learning process and are the core of any mastery learning program. It is through these procedures that mastery learning "individualizes" instruction. Students' individual learning difficulties are quickly identified and specific remediation strategies are prescribed. In this way feedback and correctives help teachers provide a more appropriate quality of instruction for more students and, as a result, more students are able to attain a very high learning standard. An instructional

program that does not include explicit feedback and corrective procedures cannot be considered mastery learning.

Congruence Among Instructional Components

While feedback and correctives are extremely important, they alone do not constitute mastery learning. To be truly effective, they must be combined with the second essential element in the mastery learning process: congruence among instructional components.

The teaching and learning process is generally perceived as having three components. At the beginning there is some idea of what is to be taught, or the learning objectives. At the end of the process is the competent learner -- that student who has learned very well what was taught and whose competence can be assessed through some form of evaluation. In between falls the act of teaching or instruction. Mastery learning adds the additional component of feedback and correctives in order to enhance both the efficiency and success of teaching and learning (see Figure 1).

Insert Figure 1

Congruence among these instructional components is critical to the mastery learning process. While mastery learning is basically neutral with regard to what should be taught, how it should be taught, and how resultant learning should be evaluated, its use does require there be

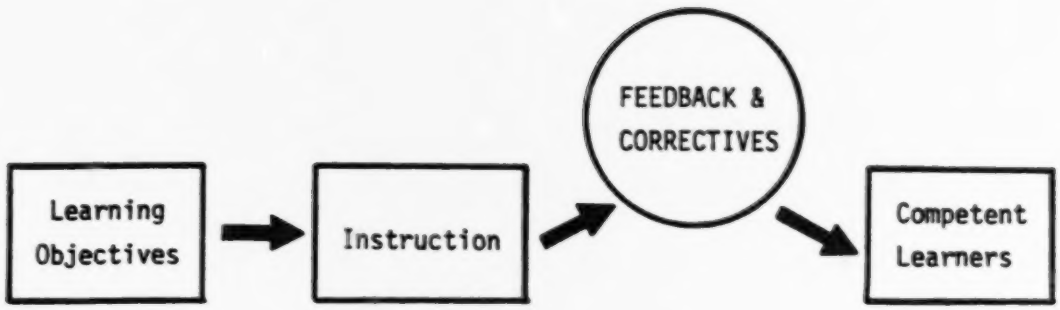

Figure 1 Major Components in the Teaching and Learning Process

strong consistency and congruence among these various components of teaching and learning. That is, what students are taught and how they are taught must be congruent with the specified learning objectives. If, for example, students are expected to learn higher level skills, such as those associated with application or analysis, they should be given guidance and practice in those skills as part of their instruction. They should also receive feedback on their learning of those skills, and directions in correcting any learning errors. In addition, procedures for evaluating their learning must be congruent with those learning objectives as well.

Congruence among instructional components is essential for effective teaching and learning at any level. A particular approach to teaching might include very precise feedback and corrective procedures as a part of the instructional process. But if the feedback students receive and the learning errors they correct are not congruent with the procedures used to evaluate their learning, few are likely to meet with learning success. For example, suppose an English teacher were to provide feedback to students through short, multiple-choice quizzes on grammar and punctuation and then evaluated students primarily in terms of the clarity of their presentations and the way they organized ideas in written compositions. In this case, although students received regular feedback on their learning, that feedback was certainly not congruent with the procedures used to evaluate their learning. Students may know the rules of grammar and punctuation but be unable to apply those rules in their writing. Or, they may prepare a composition with perfect grammar and punctuation, but receive a low grade because of inadequate content or poor organization of ideas.

In a mastery learning class the feedback students receive should always be congruent with specific learning criteria and the procedures used to evaluate their learning. If, indeed, students' writing skills, their organization of ideas, and the content of their writing are the criteria by which their learning is to be evaluated, they should receive diagnostic feedback in terms of these criteria, and guidance in overcoming whatever difficulties they may be experiencing. If there is not congruence among these components of instruction, the approach cannot be considered mastery learning.

In some instances this element of congruence has led to criticism of mastery learning as being nothing more than "teaching to the test." But this is truly not the case. The important issue here is what is the basis of the teaching. If a test serves as the basis of the teaching, and if what is taught is determined primarily by that test, then indeed one is "teaching to the test." Under these conditions, the content and format of the test guide and direct what is taught and how that is taught. With mastery learning, however, the learning objectives, which are generally determined by individual teachers, are the basis of the teaching and the primary determiner of what is taught. In using mastery learning, teachers simply ensure their instructional procedures and tests match what they have determined to be important for their students to learn. Thus, instead of "teaching to the test," these teachers are more accurately "testing what is taught." But after all, if it is important enough to test, it ought to be important enough to teach. And if it is not important enough to teach, why should it be tested?

Implications

The delineation of these essential elements offers several important implications for the implementation of mastery learning. First, it illustrates that mastery learning can be very broadly applied. The direct application of these essential elements to instruction in basic skills is apparent to most. But the same elements can also be highly effective when applied to instruction in higher level skills such as problem solving, deductive reasoning, or creative writing. To teach creative writing, for example, one of the first things a teacher must be able to do is describe the difference between a composition that is creative and one that is not. If that difference cannot be described, in some detail, what is the teacher going to teach? Describing that difference is a prerequisite to teaching such higher level skills. And as soon as that difference is described, a basis is established for offering students feedback on their writing and guidance in correcting errors and making revisions so that the composition that is less creative becomes more like the one that is. In other words, a basis is established for the use of mastery learning. Thus, the essential elements of mastery learning can be applied across the entire range of learning objectives, from the very basic to the extremely complex.

Second, these essential elements clearly show that teachers do not have to dramatically change what they are doing in their classrooms or the way they teach in order use mastery learning. In fact, most excellent teachers are probably using some form of mastery learning already. Others are likely to find that the mastery learning process blends well with many of their present teaching practices. The use of

mastery learning does not require any alteration in school policy, class scheduling, or classroom arrangements. Rather, it builds upon and extends the professional skills teachers have already developed and refined. Given the demands already placed upon teachers and the difficulties generally associated with approaches that do require major changes or extensive revisions in teaching procedures (see Fullan, 1982), this is a very exciting prospect.

Third, although the changes required to implement these essential elements of mastery learning are relatively modest, research evidence shows that their use can have extremely positive effects on student learning (Block & Burns, 1976; Guskey & Gates, 1985). Providing feedback and correctives, and assuring congruence among instructional components does not require a great deal of extra time or effort on the part of most teachers, especially if tasks can be shared among teaching colleagues. Still, the careful and systematic use of these elements can lead to significant improvements, not only in students' level of achievement, but also in their attendance in school, their involvement in class lessons, and their attitudes toward learning. This has been referred to as the "multiplier effect" of mastery learning (Guskey, Barshis, & Easton, 1982) and certainly makes mastery learning one of the most cost-efficient means of fostering educational improvement.

Fourth, and perhaps most important, through the careful and well-planned implementation of these essential elements teachers can pass along the benefits of learning success to many more of their students. Teachers generally find that with mastery learning they can help most, if not all, of their students attain a much higher standard

of learning and earn far better grades. As a result students feel much better about learning and about themselves as learners. They develop a more positive sense of personal pride, confidence, and well-being. This, in turn, helps teachers feel more effective. It makes teaching much more enjoyable and far more satisfying as a profession. In fact, many teachers report that the use of mastery learning has helped renew the enthusiasm they once felt for teaching. Frequently they describe their feelings as a "rebirth" -- a rekindling of the flame the years of heartache and frustration in the classroom had nearly extinguished (Guskey, 1980).

Mastery learning is not an educational panacea. It will not solve all of the problems teachers must face. It also does not reach the limit of what we know is possible in terms of the potential for teaching and learning. We are continuing to work on new ideas to attain even better results than those typically gained through the use of mastery learning (Bloom, 1984). But careful attention to the essential elements of the mastery learning process will undoubtedly allow us to make great strides toward our goal of learning success for <u>all</u> children.

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